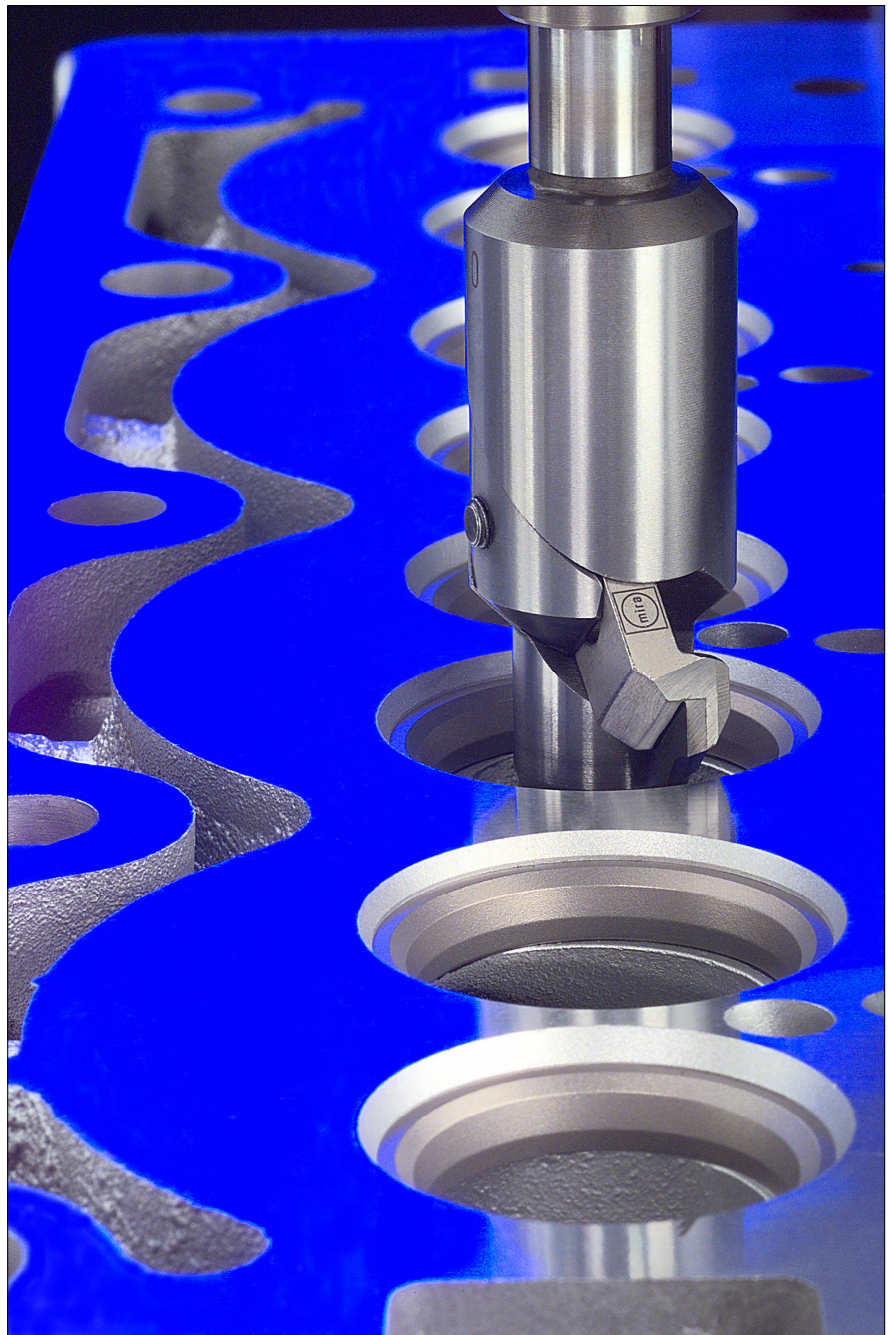


MIRA[®]

Precision Tooling & Equipment

Automotive Catalog



05/2012

www.miratool.ch



The Company

Almost 40 years ago and along with the development and manufacturing of its line of VG-valve seat refacing machines, MIRA invented the famous 3-angle seat cutting system. A device which truly revolutionised the way of valve seat cutting and machining.

Meantime MIRA has gradually become a leader in the field of designing, developing and manufacturing first class tooling and equipment for the professional engine builder and cylinderhead professional.

MIRA is a family owned, highly innovative and fully customer orientated Swiss Engineering and Manufacturing Company. From its beginnings in 1967, MIRA has always produced top-quality products at affordable prices.



MIRA manufactures a fine line of high precision machinery, tooling and equipment for the remanufacturing and tuning of petrol and Diesel cylinderheads as well as engine blocs with counterbores.

MIRA products are used for the following main applications:

- **Cars**
- **Trucks**
- **Karts**
- **Motorcycles**
- **Marine Engines**
- **Performance Engines**



MIRA machines and tools are built to deliver higher accuracy than any other comparable equipment on the market. To this day, MIRA designs and produces all critical components in-house using dedicated state-of-the-art CAD and CNC machines to ensure rock-solid engineering and high manufacturing quality.

MIRA's quality management system is fully ISO 9001:2009 certified

If you are looking for additional products or if you have questions - just give us a call ! MIRA is a team of friendly, experienced and highly motivated people - all ready and dedicated to serving your needs !

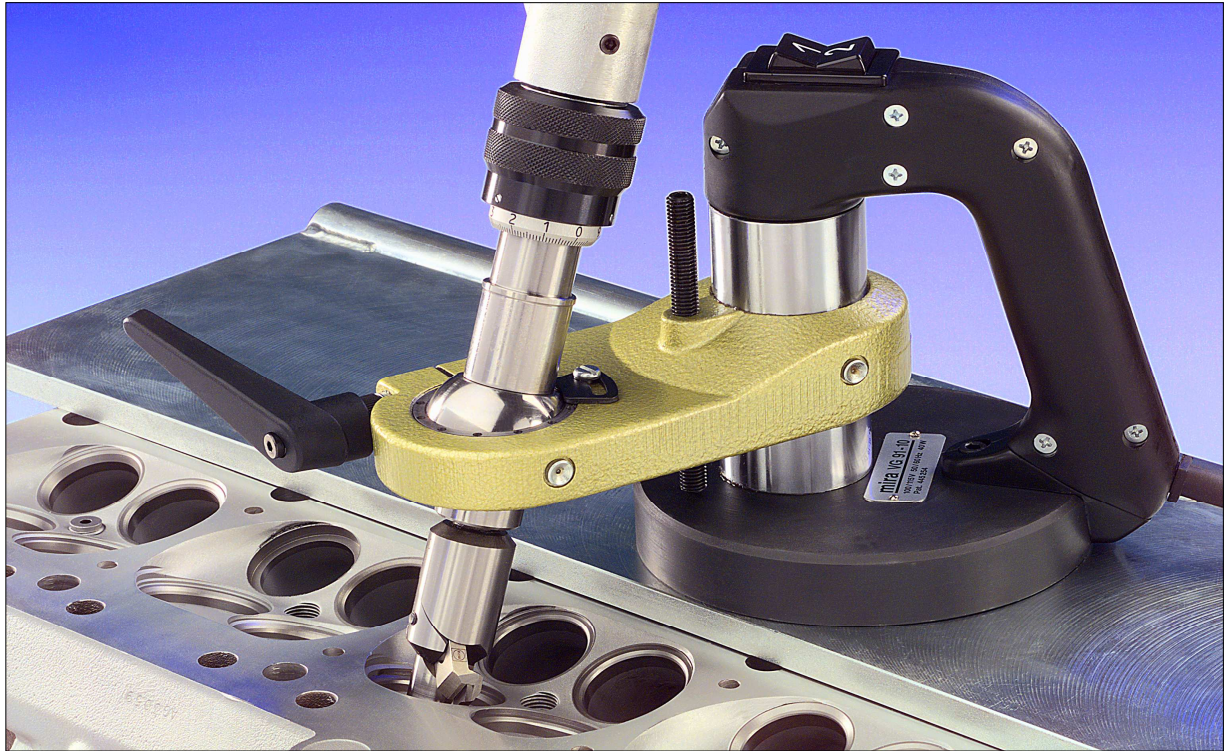


Innovative Swiss Quality Engineering

MIRA®

VG-91 Classic

Accurate Low Cost Valve Seat Refacing



VG-91 Specifications:

Seat min/max 23-55mm
Guide min/max 05-13mm
Bores min/max 21-58mm

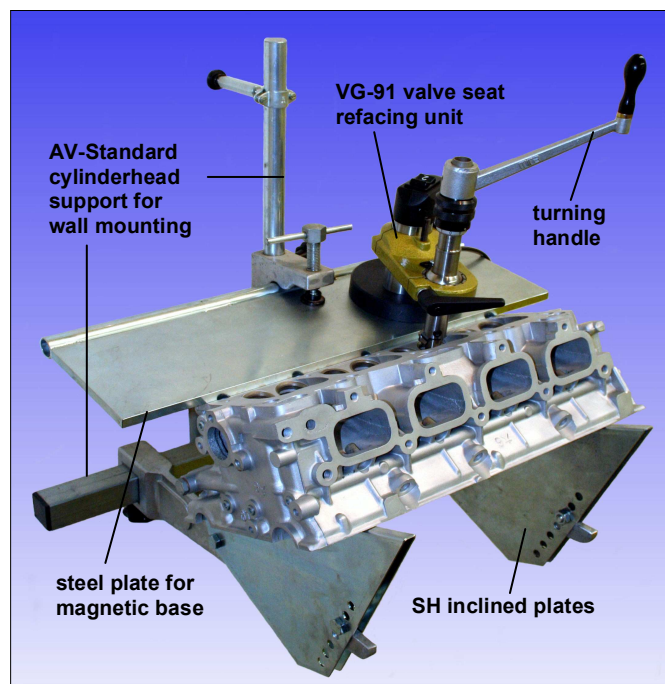
VG-91 Starter Package

- 01 VG-91 Valve Seat Refacing Unit
- 01 DRC 1 toolhead (21-45mm seat Ø)
- 13 FD-type pilots (free selection)
- 06 SK-type formtools (free selection)
- 01 AV standard cylinderhead support
- 01 SH inclined plates

Order Number: VG-91 Package

Optional Equipment

- DRC 05 toolhead (16-35mm seat Ø)
- DRC 2 toolhead (37-55mm seat Ø)
- VD-97 Vario-Drive electronic drive unit
- MUV Multivac Vacuum Test Unit
- HSM Formtool Grinding Machine

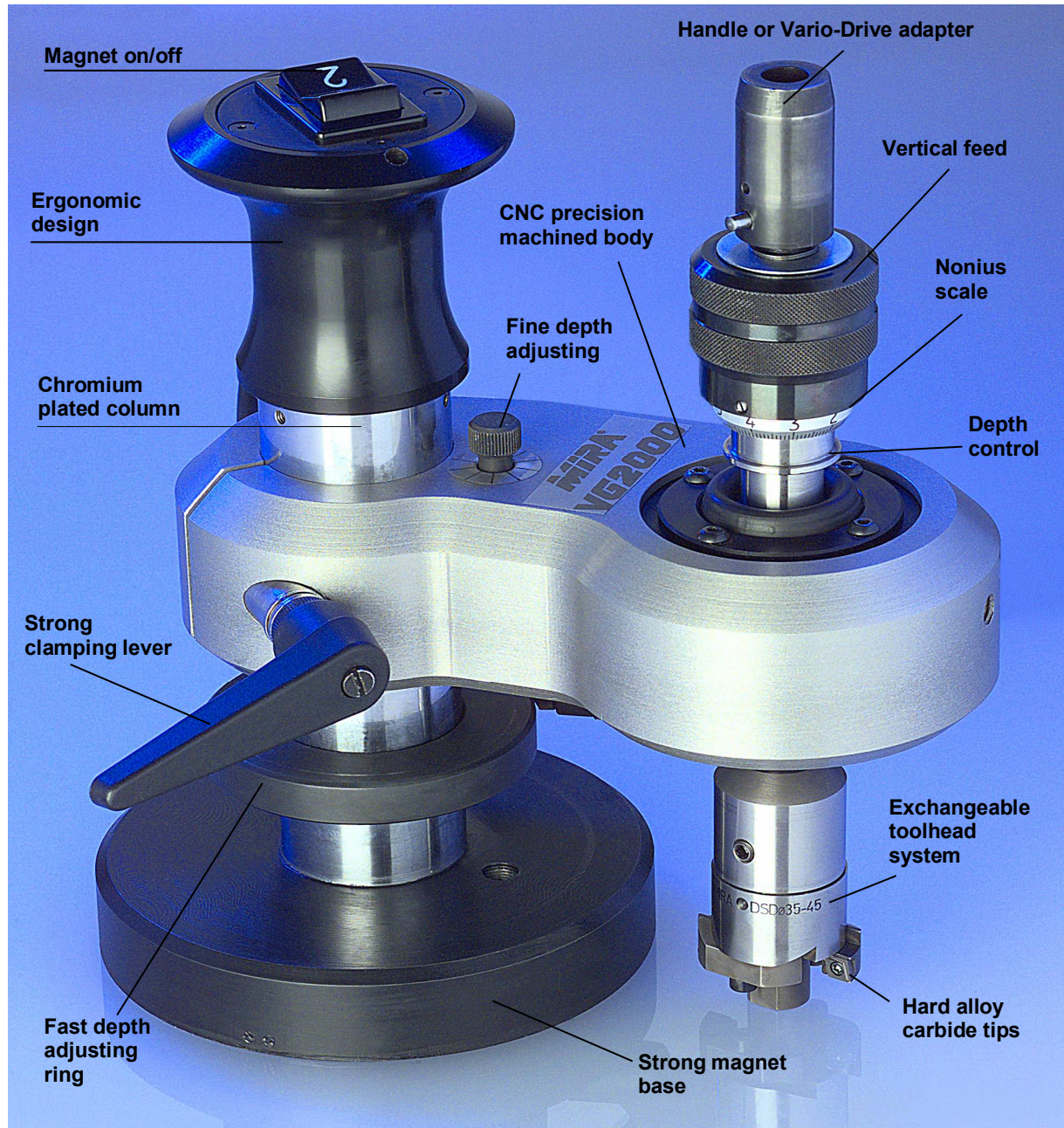


Top Quality Product - At Affordable Price

MIRA[®]

VGX-21

Perfect 3-Angle Valve Seat Cutting



The VGX-21 valve seat refacing unit has been developed for the specialised petrol and diesel cylinderhead workshop. The highly accurate valve seat processing is achieved by a new spherical spindle guide bearing as well as a unique hydraulic ball clamping system. A almost pressure free centering and braceless fixing of the MIRA rotary head is made possible in order to achieve precise and concentric valve seats ! **Order Number: VGX-21**

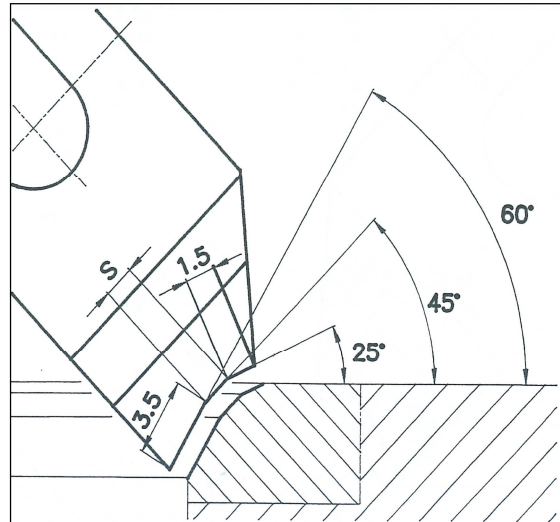
With Fast Exchangeable Toolhead System



Multicut Tooling System



The MIRA tooling system features unique exchangeable **DT-TOOLHEADS** for the fast and easy adjustability to the desired seat dimensions.

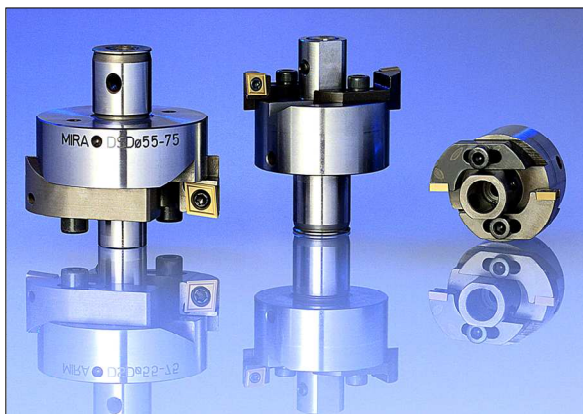


A large selection of original **MIRA MULTICUT FORMTOOLS** as well as a huge range of original **MIRA PILOTS** are listed in the illustrated MIRA tooling catalog !

Have a look into the MIRA our formtool catalog under www.miratool.ch

Custom Made Formtools and Pilots

The double edged toolhead with exchangeable **hard alloy carbide tips** makes it easy to rationally turn out valve seat rings and to manufacture ring seat counterbores with great accuracy.

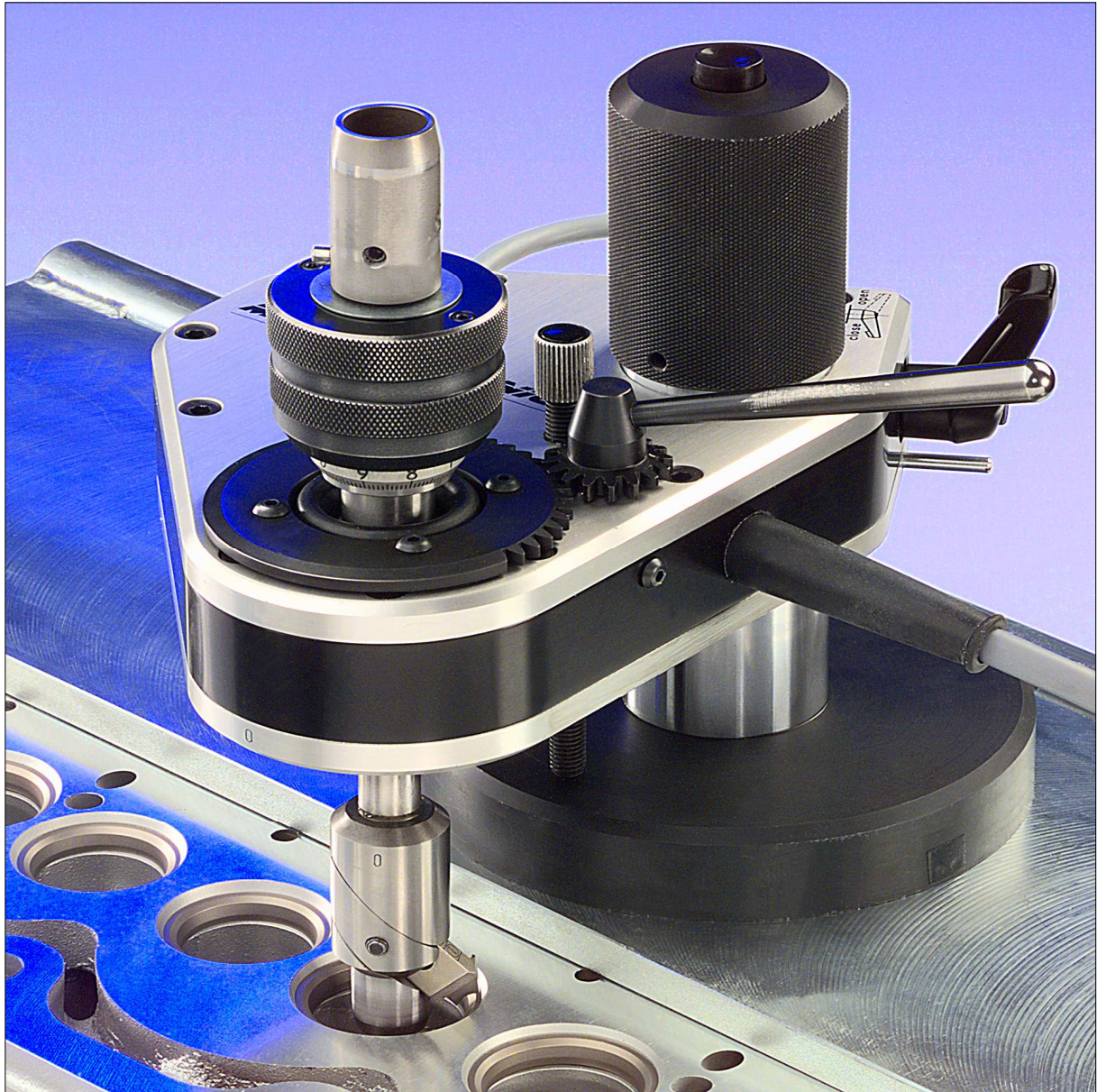


Swiss Made Precision Tooling & Equipment

MIRA[®]

CENTRONIC

Patented Active Centering System



Today's increasing multivalve cylinderhead designs with small diameter valve stems and seats are bringing existing valve seat and guide machines to its limits !

MIRA has continuously refined its famous CENTRONIC system offering now unmatched precision and repeatability in valve seat refacing.

The MIRA microprocessor-controlled system automatically sets the spindle to the precisely calculated centerline. This ensures, that perfect concentricity and accuracy is obtained with each valve seat !

Computer Controlled Valve Seat Refacing

MIRA[®]

CENTRONIC NG

High-Tech Valve Seat Refacing



The new MIRA Centronic NG with its state of the art computer controlled centering system is the preferred choice of famous race engine builders around the world!

MIRA CENTRONIC is the perfect solution for the new generation of high-tech multivalve heads in the motorsport and automotive industry!



Over 2000 Centronic units in operation worldwide !

This are the outstanding benefits of MIRA's well proven active centering system

1. **Precise and tight valve seats!**
2. **Consistent repeatability of the centering process!**
3. **Perfect centering results with pilot clearance up to 0.04mm!**
4. **Excellent results even with guide diameters of less than 5mm!**
5. **Fast, affordable and easy to operate!**
6. **Large selection of genuine MIRA MULTICUT formtools and pilots!**
7. **Available as single unit or complete power driven workplace!**

Centronic NG Specifications:

Seat:	min/max	16 – 55 mm
Guide:	min/max	3,5 – 12 mm
Bores:	min/max	21 – 58 mm

HM 2000 NG **MIRA**[®]

High Performance Cylinder Head Center

HM-2000 NG



HM-2000 NG with MIRA VGX-21 Valve Seat Refacing Unit

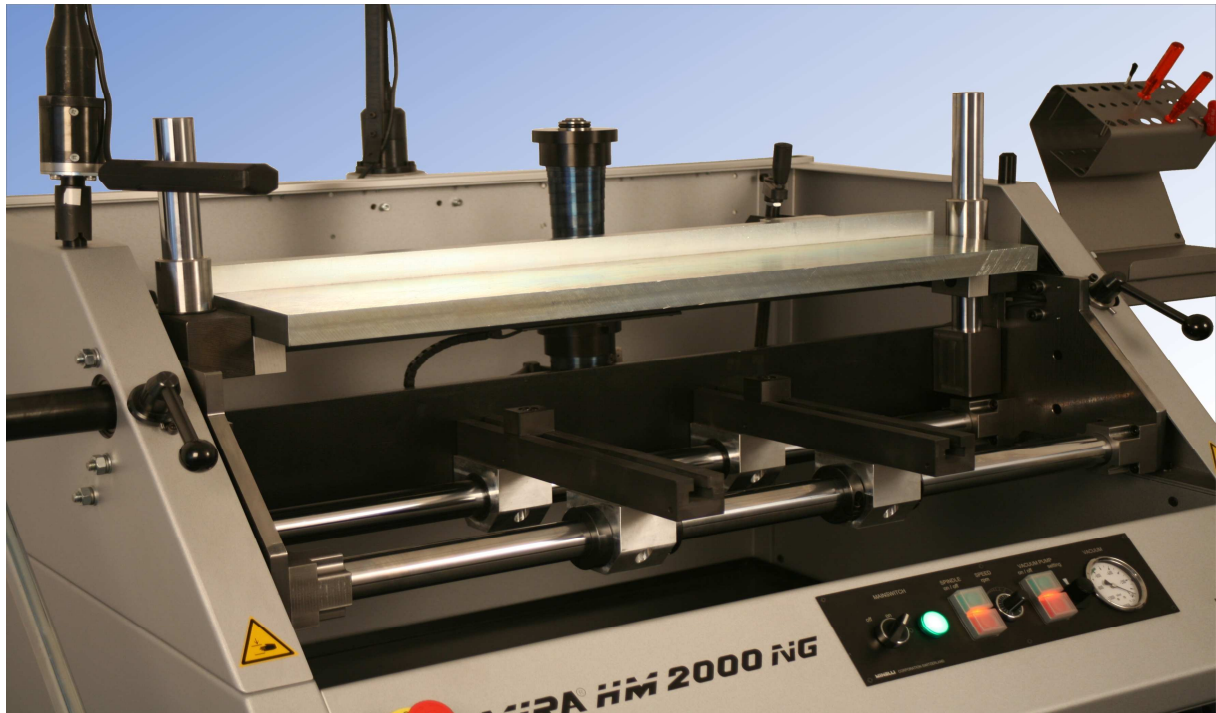
HM 2000 NG standard features

- 800mm/300° rotating heavy duty cylinder head support
- Fully motorized z-axis with 150mm table hub
- Joystick controls for smooth and tight head clamping
- Vario-Drive stepless electronic drive unit
- Integrated MULTIVAC vacuum test unit
- Available in different colours (optional)

SWISS MADE quality tooling and equipment

HM 2000 NG

MIRA®



Specifications

VGX-21 Seat Refacing Unit

Valve Stem Diameter:	min/ max	4 to 16mm
Valve Seat Diameters:	min/max	16 to 75mm
Seat ring counterbores:	min/max	21 to 75mm
Spindle speed (stepless):	min/max	0 to 200 1/min
Spindlehead clamping:		Hydraulic

HM-2000 NG Cylinderhead Workplace

Cylinder Head Support:	Z-axle motorized, 300 rotating
Max Cylinderhead Length:	800mm
System Voltage	110/230 Volt
Floor Space:	2200 x 1800 x 2000mm
Machine Weight:	320 Kg

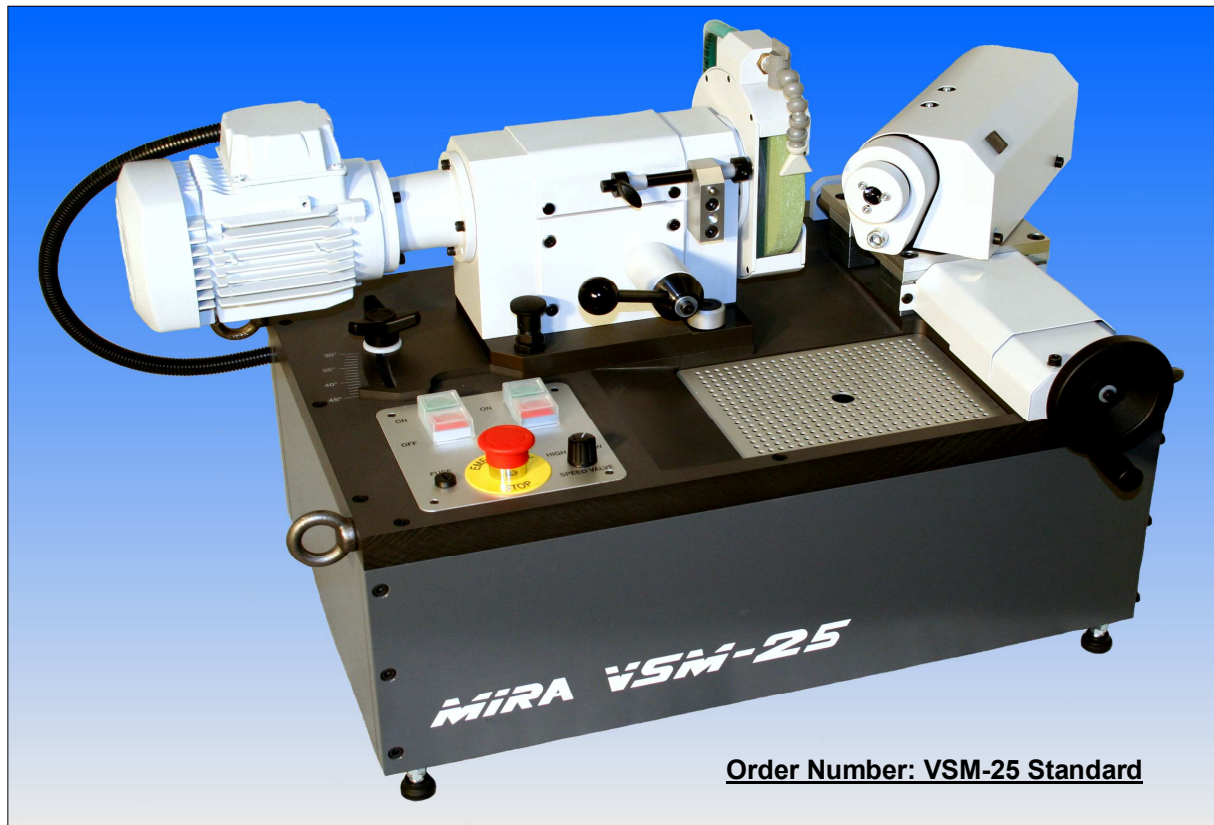
The HM-2000 NG is also suitable for Centronic NG and VG-91 Valve Seat Refacing Units!

Workplace for the professional engine builder!

MIRA[®]

VSM-25

New Precision Valve Refacer



Order Number: VSM-25 Standard

Pneumatic Ball Chuck Clamping System



Technical Specifications

Min. valve stem diameter	3.50 mm
Max valve stem diameter	13.00 mm
Standard valve grinding angle	19-46°
Grinding wheel speed	2'800 1/min
Variable valve drive	0-300 1/min
2 driving motors	0.4kW / 0.06kW
Wet grinding unit with coolant, filter and tank	
Voltage	230V/50Hz - 115V/60Hz
Machine dimensions	900 x 600 x 500mm
Weight	75 Kg

Standard Equipment

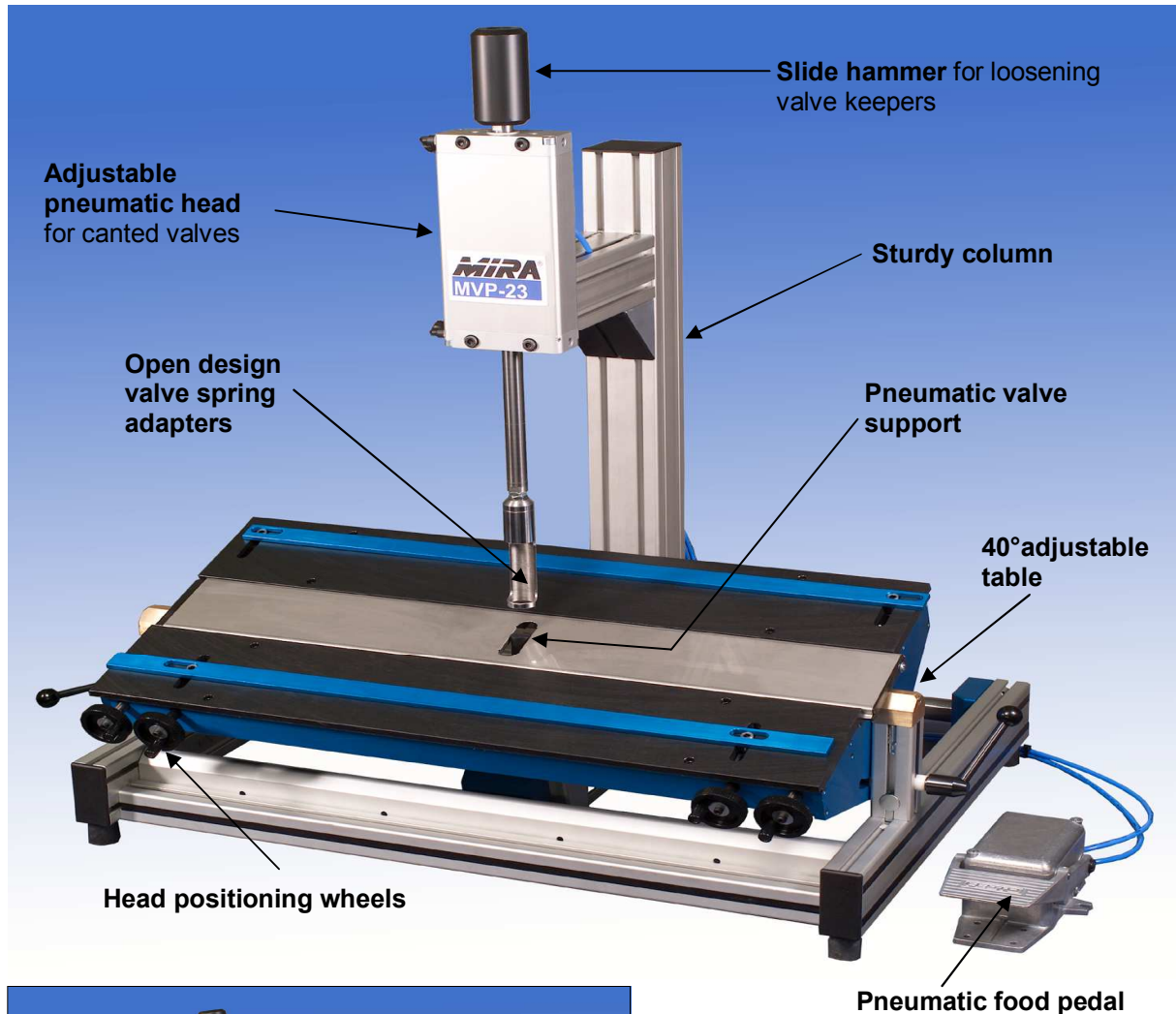
Grinding wheel
Diamond grinding wheel dresser
Stem grinding attachment
Machine light

Accepts 3.5mm Valve Stem Diameters

MIRA[®]

MVP-23

Rapid Pneumatic Valve Spring Press



Technical Specifications

Arm movement:	X = 620 mm (column) Z = 160 mm (stroke)
Z-movement:	by pneumatic foot pedal
Air pressure	6 bar
Table dimensions:	755 x 360mm

Overall Dimensions

Length	830 mm
Width	600 mm
Height	1300 mm / 1140mm
Net. weight:	45 KG
Shipping Dim.	900 x 700 x 1200

Order Number: MVP-23

Fast Dissassembly & Assembly of Valve Springs

MIRA[®] **VD-97** *Vario-Drive* *Variable Electronic Speed Drive Unit*

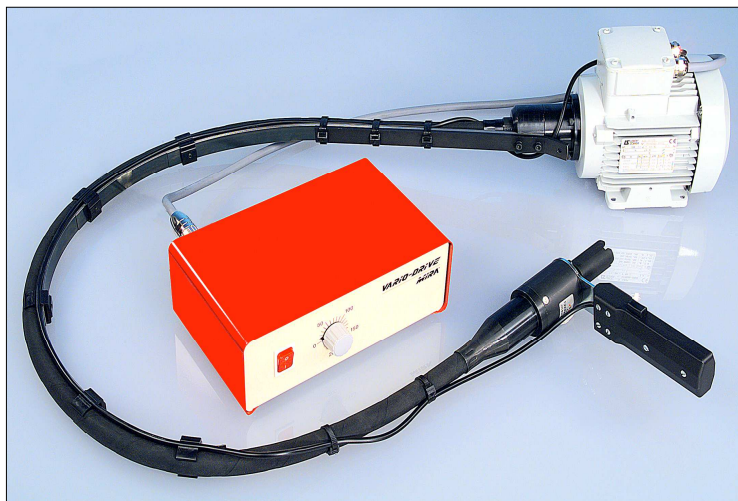
With the VARIO-DRIVE you can improve the efficiency of your cylinderhead workplace.

The Vario-Drive enables a fatigue-free and time saving refacing of valve seats and guarantees smooth, even cutting motion.

The Vario-Drive is well adapted to complete the hand-driven MIRA equipment.

The system is stepless adjustable between 50 - 200 1/min.

Order Number: VD-97



MIRA[®] **MUV-95** *Universal Vacuum Test Unit*



The MULTIVAC is a versatile test unit for sealing tests on cylinderheads before and after rebuilding and on installed engines for rapid diagnosis.

It can be used for function tests on the vacuum controlled components on a vehicle with a maximum vacuum up to 800 mbar

Order Number: MUV-95

For Final Inspection of Valve Seat Sealing

MIRA[®]

MHC-26

New Bench Top Honing Center



Features

- Fast and easy set-up
- Menu guided display
- Language selector
- Variable speed control
- Pneumatic stone feeding
- Zero adjust measuring system
- Adaptable OE mandrels
- OE precision stones
- Foot pedal on/off
- Integral honing fluid system
- Exchangeable cartridge filter

Programmable Logic Control System (PLC) with permanent data storage inside. RS232/USB port on request.

Job-Shop and Production Capability

Specifications / Technical data

Type: Manual Stroke - Horizontal
Diameter range: 2.0mm to 88.00mm
Spindle speed: Infinitely variable
200-1600 1/min.
Spindle motor: 0.55kW
Power req: 230V/50Hz / 115V/60Hz
Air req: 0.5 Bar / dry air

Dimensions: 610x915x435mm
Gross Weight: 120 Kg

Order Number: MHC-26



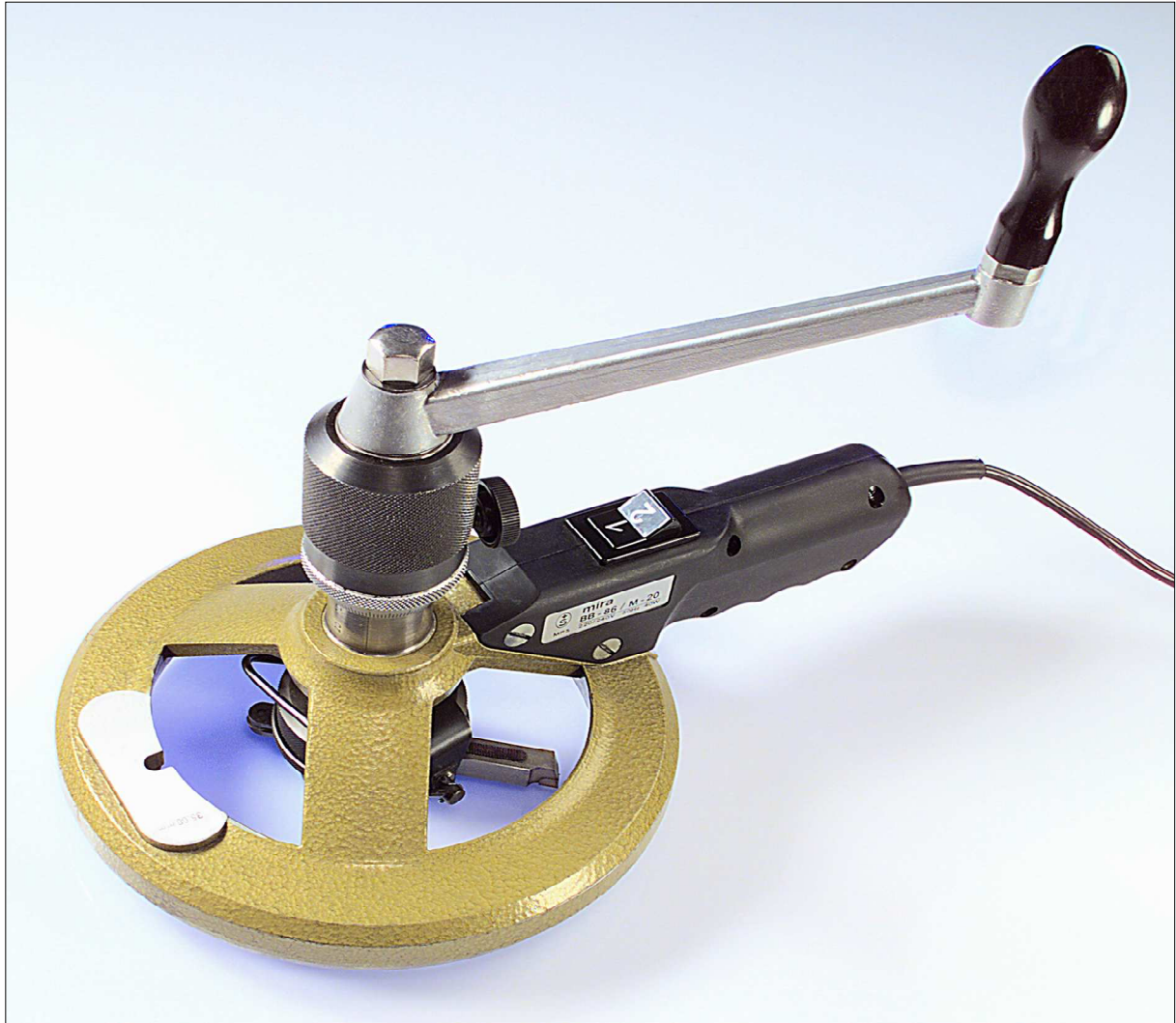
The MIRA MHC-26 is the ideal Honing Machine for:

Cylinders / Bushings / Rod and Piston Fittings / Spline Gears / Blind Bores etc.

For Automotive & Industrial Requirements

MIRA[®] BB-86 Counterbore Unit

Recuts Diesel Sleeve Counterbores



Available as BB-86 Standard 170mm Unit or BB-86 „Giant“ with 198mm Inside Diameter !

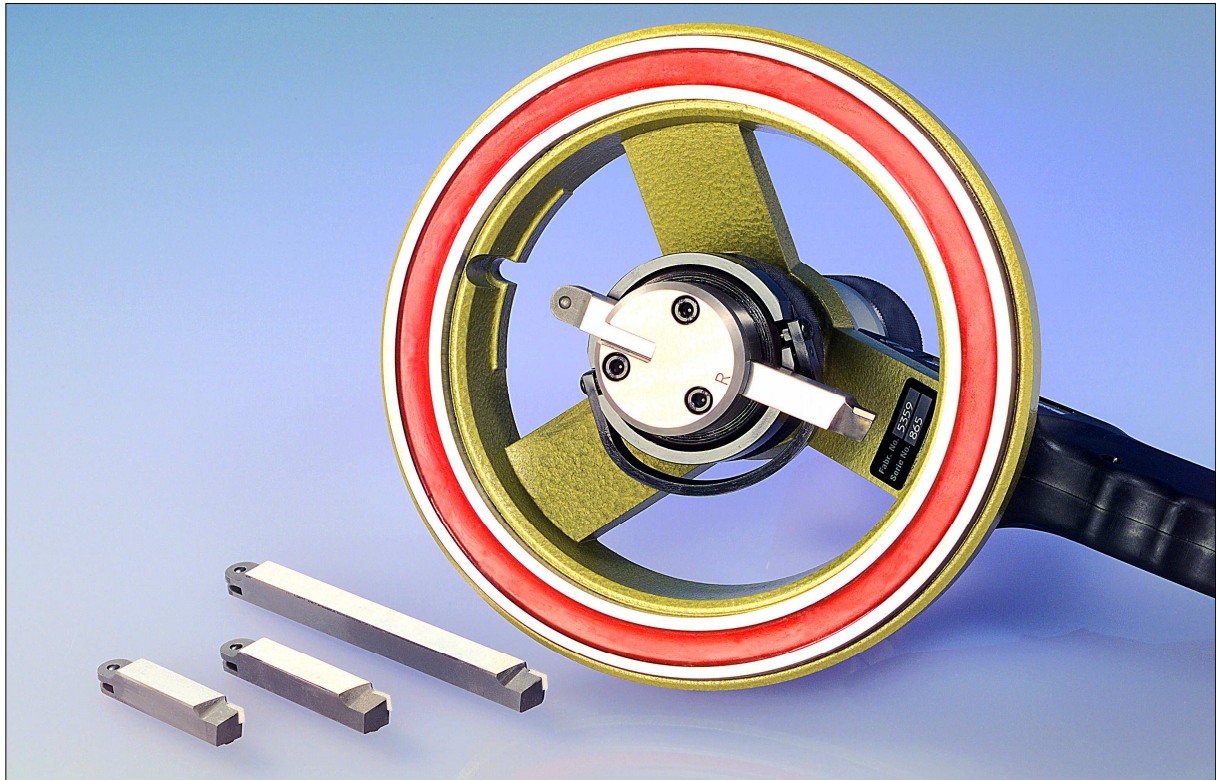
To guarantee a perfect seal between engine block and wet liners, the counterbore seats in an engine block must be refaced during engine overhaul and in case of leaks. This job is rapidly and simply carried out with the very accurate BB unit. Its centering is automatic and the unit is clamped by means of an electro magnet. As the unit is placed directly on the sealing surface of an engine block, the refaced counterbore seats will automatically be parallel with the sealing surface. The refacing procedures can be carried out on installed as well as on removed engine blocks or even built-in underfloor engines.

Order Numbers: BB-86 or BB-86 „Giant“

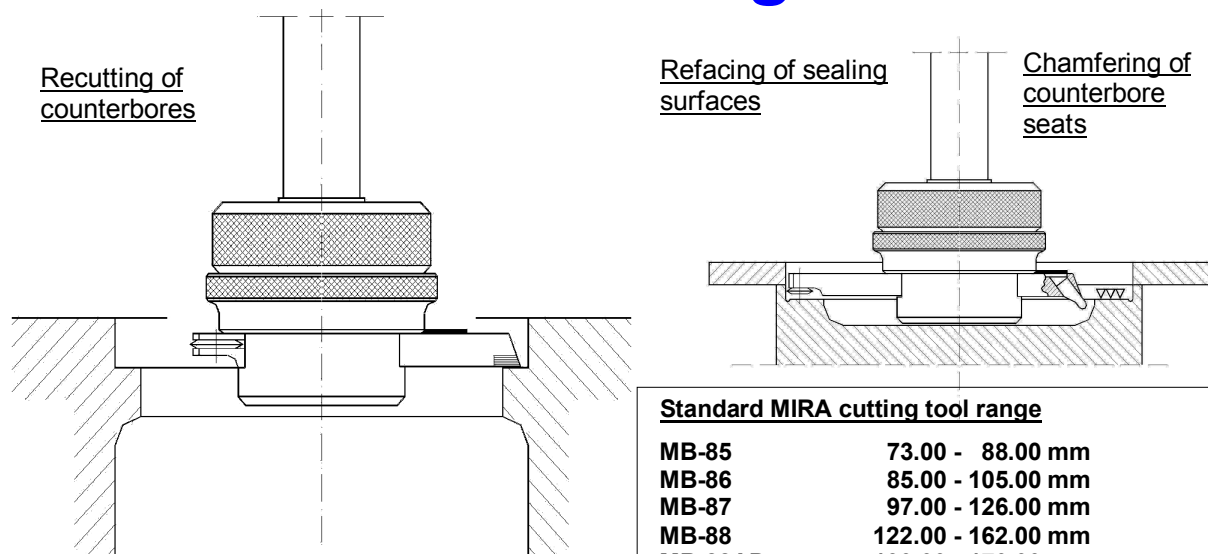
Precise & Quickly - Ask for a Detailed Offer !

MIRA[®] BB-86 Counterbore Unit

Fully Portable - Simple to Operate



Powerful Electro Magnetic Base



For deep seated counterbores, a special extension shaft (220mm) is available.

Standard MIRA cutting tool range

MB-85	73.00 - 88.00 mm
MB-86	85.00 - 105.00 mm
MB-87	97.00 - 126.00 mm
MB-88	122.00 - 162.00 mm
MB-88AD	130.00 - 170.00 mm
MB-89*	158.00 - 198.00 mm
MB-90*	194.00 - 225.00 mm

* In combination with an intermediate steel plate !

Special Tooling and Extension Kit on Request !



Academy

Swiss Cylinder Head Training Center



MIRA Product Training

If you are currently using MIRA equipment for cylinderhead rebuilding or if you are considering opening or expanding your machine shop, the **MIRA Cylinder Head Academy** is just made for you !

MIRA is offering a basic „**training on the job**“ providing the theoretical and practical skills for todays and tomorrows cylinderhead rebuilding.

The **MIRA Training Program (MTP)** consists of classroom discussions and hands-on instruction covering all aspects of modern Cylinder Head Rebuilding !

Cast Iron, aluminium, multivalve and diesel applications are all covered within the MIRA training sessions.

Individual Training Programs available on Request !

The Complete Cylinder Head Training Package !

Classroom Discussions

- Cylinder Head Theory
- Valve Guide Condition
- Valve Seat ABC
- The MIRA Method
- Selecting the right tooling
- Testing the Valve Seat

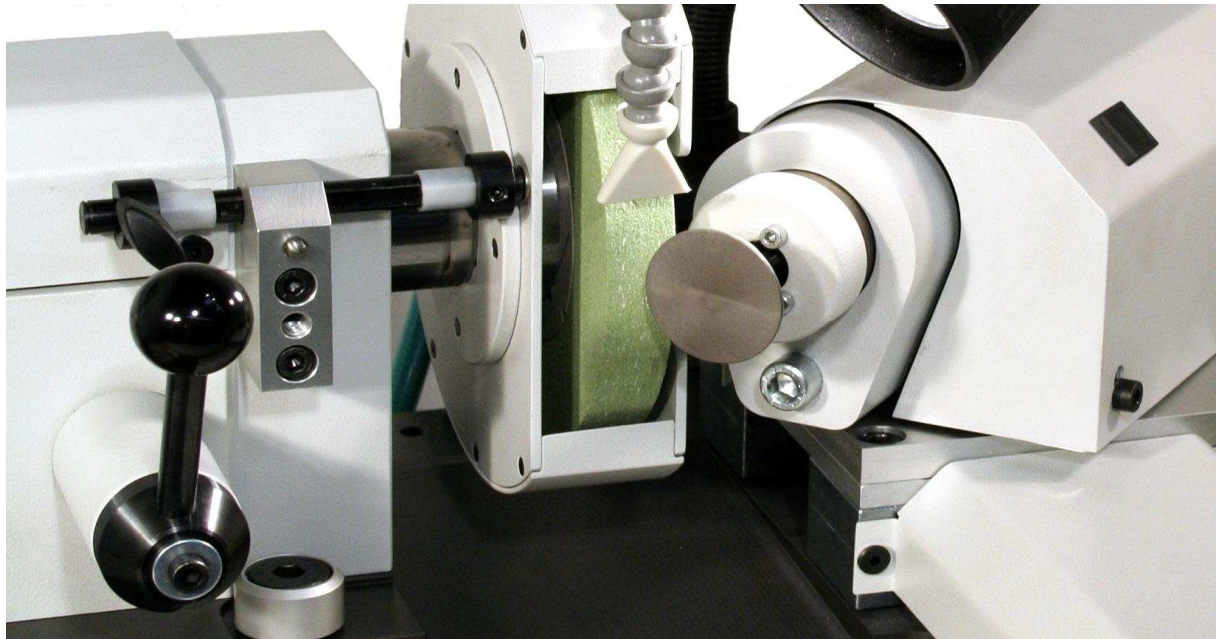
Hands-On Instruction

- Disassembly & Inspection
- Crack Detection
- Surfacing Machine Instruction
- Valve Grinding & Seat Inserts
- Valve Guide Replacement
- Valve Seat Refacing & Testing
- Assembly Procedures



Contact the MIRA MTP Department for further details !

MIRA[®] *Swiss Precision Tooling*



**For prices and availability have a
look into the new MIRA webshop!**

www.miratool.ch



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Manufacturer and Worldwide Distributor

MINELLI CORPORATION
MIRA Division
8330 Pfaeffikon / Zurich
Switzerland

Phone: 0041-44-952 35 35
Fax: 0041-44-952 35 60
Homepage: www.miratool.ch



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